Maryland Healthcare-Associated Infections Prevention Plan

Submitted to the
Office of the Secretary
U.S. Department of Health and Human Services

January 1, 2010

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Maryland Healthcare-Associated Infections Prevention Plan

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	3	Integrate Laboratory Activities	●		
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	3	Improve Communication of HAI Outbreaks and Infection Control Breaches		○	
	4	Identify at Least Two Priority Prevention Targets for Surveillance		●	
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Key		(For Additional Details on Planned Activities Refer to Appendix A)
	●	Items Underway (Current activities in which the State is presently engaged; includes activities scheduled to begin using currently available resources.)
	○	Items Planned (Future directions the State would like to move in to meet currently unmet needs, contingent on available resources and competing priorities.)
	○	Items Not Included in Initial Maryland HAI Plan
Level I		Basic Elements to Begin HAI Prevention Efforts
Level II		Intermediate
Level III		Mature Efforts

List of Abbreviations Used in the Plan

APIC	Association for Professionals in Infection Control and Epidemiology, Inc.
AMP	Antimicrobial Prophylaxis
AST	Active Surveillance Testing
BSI	Bloodstream Infection
CABG	Coronary Artery Bypass Graft
CA-UTI	Catheter-associated Urinary Tract Infection
CDC	Centers for Disease Control and Prevention
CLABSI	Central Line-associated Bloodstream Infections
CMS	Centers for Medicare and Medicaid Services
CRE	Carbapenem resistant Enterobacteriaceae
CRISP	Chesapeake Regional Information System for our Patients
DHMH	Department of Health and Mental Hygiene (Maryland)
DHQP	Division of Healthcare Quality Promotion (CDC)
DVT	Deep Vein Thrombosis
EHR	Electronic Health Record
EIP	Emerging Infections Program
ELR	Electronic Laboratory Reporting
ESBL	Extended spectrum beta lactamase producing gram negative organisms
HAI	Healthcare-Associated Infections
HAI-TAC	Healthcare-Associated Infections Technical Advisory Committee
HH	Hand Hygiene
HICPAC	Healthcare Infection Control Practices Advisory Committee
HIE	Health Information Exchange
HCW	Health Care Workers
HQA	Hospital Quality Alliance
IP	Infection Preventionist
ICU	Intensive Care Unit
IDEHA	Infectious Disease and Environmental Health Administration (DHMH)
MDRO	Multi-drug Resistant Organism
MHCC	Maryland Health Care Commission
MPSC	Maryland Patient Safety Center
MRSA	Methicillin-resistant *Staphylococcus aureus*
MSS	Messaging Subscription Service
NEDSS	National Electronic Disease Surveillance System
NHSN	National Healthcare Safety Network
NICU	Neonatal Intensive Care Unit
NQF	National Quality Forum
OHCQ	Office of Health Care Quality
ONC	Office of the National Coordinator for Health Information Technology
SCIP	Surgical Care Improvement Project
SHEA	Society for Healthcare Epidemiology of America
SSI	Surgical Site Infection
VAP	Ventilator-associated Pneumonia
VRE	Vancomycin-resistant *enterococcus*

Introduction

Maryland has been a leader in collecting and publicly reporting information on health care quality measures that further the goals of promoting knowledgeable patient choices about health care providers and providing feedback to health care providers and policymakers to benchmark performance and inform quality improvement initiatives. The State's efforts are guided by a commitment to ensuring that care is safe, effective, patient-centered, timely, efficient, equitable, integrated, and affordable.

The ***Maryland Healthcare-Associated Infections (HAI) Prevention Plan*** has been developed by the Maryland Health Care Commission (MHCC or Commission), in consultation with the Department of Health and Mental Hygiene (DHMH), Infectious Disease and Environmental Health Administration's (IDEHA) Office of Infectious Disease, Epidemiology and Outbreak Response, and with the Maryland Health Quality and Cost Council. The Commission's HAI Advisory Committee guided the development of this initial plan and will be responsible for providing on-going assistance in preparing updates and developing implementation strategies. At their December 1st and 10th meetings, the HAI Advisory Committee reviewed and recommended changes to drafts of the Plan. (The members of the HAI Advisory Committee are shown in Figure 1.) Following review by the HAI Advisory Committee, the Plan was presented to the Commission on December 17, 2009 and the Maryland Health Quality and Cost Council on December 18, 2009.

An Inter-Agency HAI Steering Committee composed of staff from DHMH, the Maryland Health Quality and Cost Council, and Maryland Health Care Commission meets on a regular basis to coordinate staff support for this HAI planning initiative. The organizations collaborating in this planning initiative are described below:

Maryland Health Care Commission. The Maryland General Assembly established the MHCC in 1999 by merging the Health Care Access and Cost Commission and the Maryland Health Resources Planning Commission. MHCC is a public regulatory commission, located administratively within DHMH, with 15 Commissioners appointed by the Governor with the advice and consent of the Maryland Senate. Healthcare-associated infections are a priority activity of MHCC. The Maryland legislature adopted Senate Bill 135, *Hospitals-Comparable Evaluation System-Health Care-Associated Infection Information* in 2006. This law, which became effective July 1, 2006, requires that the Hospital Performance Evaluation Guide developed by the MHCC be expanded to include HAI information from hospitals. The legislation specifies that the system for reporting data must adhere to the current recommendations of the federal Centers for Disease Control and Prevention (CDC) and the CDC Healthcare Infection Control Practices Advisory Committee (HICPAC) regarding the public reporting of HAIs. Information on Commission HAI activities is available at: http://mhcc.maryland.gov/healthcare_associated_infections/index.html

DHMH, Infectious Disease and Environmental Health Administration (IDEHA). The DHMH IDEHA conducts surveillance for and investigates outbreaks and unusual cases of communicable diseases in Maryland's population. There is broad expertise in infectious diseases within IDEHA, including physicians trained in infectious diseases, certified infection preventionists, and epidemiologists. Maryland is one of ten states that participate in the Emerging Infections Program (EIP), a population-based network of the CDC, USDA, FDA, and state health departments to assess the public health impact of emerging infections and to evaluate methods for their prevention and control. Information about IDEHA is available at: http://eh.dhmh.md.gov/ideah/

Maryland Health Quality and Cost Council. Governor O'Malley's vision for health care reform addresses health care quality, costs, and access. In October 2007, Governor O'Malley created the 14-member Maryland Health Quality and Cost Council through an Executive Order to focus priorities for improving health care in Maryland. The Council, which is chaired by Lieutenant Governor Anthony G. Brown and vice chaired by Department of Health and Mental Hygiene Secretary John M. Colmers, is tasked with developing strategic health policy reforms to improve the health of Maryland's citizens, maximize the quality of health care services, and contain health care costs. The Council has prioritized conducting a statewide hand hygiene initiative and prevention of healthcare-associated infections as part of its work plan. Information about the Maryland Health Quality and Cost Council is available at: http://dhmh.maryland.gov/mhqcc/

Organization of the Plan

This initial plan uses the template developed by the Centers for Disease Control and Prevention (CDC) and targets activities in four areas: (1) develop or enhance HAI program infrastructure; (2) HAI surveillance, detection, reporting, and response; (3) prevention; and, (4) evaluation, oversight, and communications. (The template checklist is provided in the Appendix to the Plan.) While the focus of this initial Plan is on acute care hospitals, activities are included to expand the scope of prevention planning to include nursing homes, ambulatory surgical facilities, and other important health care providers in future updates. A Profile of Maryland Health Care Facilities is provided in Figure 2.

Figure 1.
Healthcare-Associated Infections (HAI) Advisory Committee

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Figure 2. Profile of Maryland Health Care Facilities

Maryland Population	
Total Resident Population (7/1/2008)	5,633,597
Total Births in Maryland (2007)	78,057
Acute Care Hospitals	
Number	47
Total Licensed Beds (7/1/2009)	10,880
ICU Beds	1,181
Emergency Department Treatment Spaces	1,857
Total Discharges (2008)	685,764
Total Patient Days (2008)	2,828,387
Emergency Department Visits (2008)	2,447,873
Operating Rooms	551
Procedure Rooms	229
Total Outpatient Surgery Cases (2008)	473,935
Total Inpatient Surgery Cases (2008)	212,908
Nursing Homes	
Number	232
Total Licensed Beds	28,063
Nursing Home Residents (12/31/2008)	23,868
Total Patient Days (2008)	9,349,826
Ambulatory Surgical Facilities	
Number	325
Operating Rooms	308
Procedure Rooms	429
Total Outpatient Surgery Cases	595,017

Source: Maryland Health Care Commission

Infrastructure Planning for HAI Surveillance, Prevention, and Control

1. Establish Statewide HAI Prevention Leadership (Level I)

Objective 1.0 **By February 1, 2010, develop a mission and vision statement to provide the foundation for expanding the role of the HAI Advisory Committee to include the development of the Maryland HAI Prevention Plan.**

Objective 1.1 **By March 1, 2010, establish an HAI Advisory Committee subcommittee structure to guide key components of the Maryland HAI Prevention Plan and implementation activities.**

Objective 1.2 **By April 1, 2010, identify specific HAI prevention targets for Maryland consistent with priorities established by the U.S. Department of Health and Human Services.**

Objective 1.3 **Monitor and communicate progress in meeting defined HAI prevention targets on an on-going basis.**

In 2006, the Maryland General Assembly amended the MHCC's statute to give it authority to collect and report information on healthcare-associated infections in hospitals. HG 19-134(e)(6). To implement this legislative mandate, the Commission convened an HAI Technical Advisory Committee (TAC) composed of hospital infection preventionists (IPs), hospital epidemiologists, public health professionals, and other interested organizations. In December 2007 the TAC released a report, *Developing a System for Collecting and Publicly Reporting Data on Healthcare-Associated Infections in Maryland*, which may also be accessed on the website: http://mhcc.maryland.gov/healthcare_associated_infections/index.html. Over the past two years, the MHCC has been implementing the recommendations of its TAC in stages beginning with the appointment of a standing HAI Advisory Committee.

The Commission took steps to establish a standing HAI Advisory Committee in early 2008 by inviting key stakeholder organizations to nominate representatives. The stakeholder organizations contacted included: Association for Professionals in Infection Control and Epidemiology, Inc. (APIC), including both the Washington, D.C. and Metropolitan Baltimore Chapters; CareFirst BlueCross and BlueShield; Department of Health and Mental Hygiene; Health Facilities Association of Maryland; LifeSpan; Maryland Ambulatory Surgery Association; Maryland Hospital Association; Maryland Patient Safety Center; and, the Society for Healthcare Epidemiology of America (SHEA). The Advisory Committee began meeting in

the spring of 2008 and has since met on a monthly basis to develop and implement plans for collecting and publicly reporting HAI data.

The thrust of this initial planning work was to identify a "starter" set of measures and a system for HAI data collection to support public reporting. The "starter" measures included Central Line-Associated Bloodstream Infections (CLABSI), active surveillance testing (AST) for Methicillin-Resistant *Staphylococcus aureus* (MRSA) in ICUs, and Health Care Worker (HCW) influenza vaccination rates. Following recommendations of the TAC, all Maryland acute general hospitals were required to enroll in the CDC's National Healthcare Safety Network (NHSN) system, effective July 1, 2008, and to use the NHSN system to report CLABSI data to the Commission from all intensive care units.

The successful implementation of the recommendations included in this initial plan developed by the TAC lays the groundwork for developing a Maryland HAI Prevention Plan. To provide the foundation for expanding the role of the HAI Advisory Committee to lead a statewide HAI prevention initiative, including the development of the Maryland HAI Prevention Plan, a new mission and vision statement will be developed for the Advisory Committee by February 1, 2010.

The HAI Advisory Committee will be responsible for providing advice and recommendations on: development of the Maryland HAI Prevention Plan; adoption of HAI process and outcome measures for data collection and public reporting; use of the NHSN for data collection; development of validation strategies for HAI data; implementation and evaluation of the statewide hospital hand hygiene initiative; electronic submission of laboratory data; and, other activities necessary to develop a coordinated, public/private sector approach to preventing HAIs in Maryland. In order to obtain broad participation in the process and focus expertise in specific areas, the Advisory Committee will be restructured by March 1, 2010 to include four subcommittees: HAI Process and Outcome Measures Subcommittee; Infection Prevention Subcommittee; IP Training and Work Force Development Subcommittee; and, Electronic Laboratory Data Reporting Subcommittee. Members of the Advisory Committee will be appointed to Chair each Subcommittee. The subcommittees established as part of the HAI Advisory Committee organizational structure will develop recommendations to guide key portions of the Plan. The four subcommittees are:

> The ***HAI Process and Outcome Measures Subcommittee*** will develop recommendations on HAI measure sets for data collection and reporting and propose prevention targets for Maryland that can be monitored using these data. The HAI data sets will include: Surgical Care Improvement Project (SCIP) process measures; Central Line-Associated Blood Stream Infections (CLABSI) and Surgical Site Infection (SSI) outcome measures; Multi-Drug Resistant Organism (MDRO) process and outcome measures; and, Health Care Worker (HCW) Influenza Vaccination rates. Additional issues that will be considered by this Subcommittee include data validation strategies and the format and frequency for public reporting of HAI process and outcome measures on the Hospital Performance Evaluation Guide.

The ***Infection Prevention Subcommittee*** will guide the work of the Prevention Collaboratives established as part of this HAI planning initiative: (1) Maryland Hospital Hand Hygiene Collaborative; and, (2) MDRO-MDR- *Acinetobacter* Prevention Collaborative. In addition, the Infection Prevention Subcommittee will develop an inventory of State-level infection prevention and control programs, identify gaps in existing infection prevention and control programs, and recommend strategies to increase impact where appropriate.

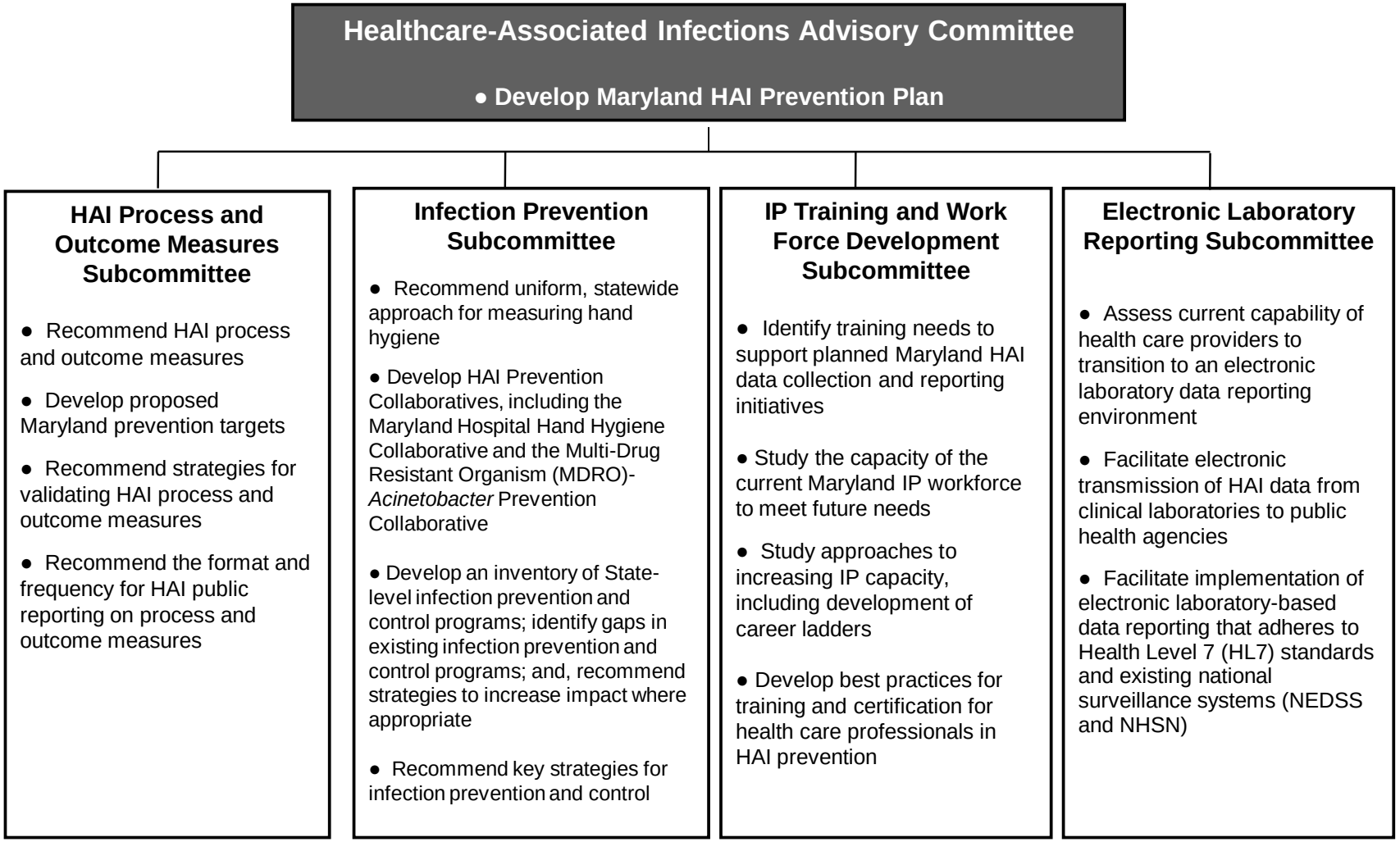
The ***IP Training and Work Force Development Subcommittee*** will identify training needs to support planned Maryland HAI data collection and reporting initiatives, study the capacity of the current Maryland IP workforce to meet future needs and recommend approaches to increasing IP capacity. This subcommittee will also work to develop best practices for training and certification for health care professionals in HAI prevention.

The ***Electronic Laboratory Reporting Subcommittee*** will assess current capabilities of health care providers and health care delivery systems to transition to an electronic laboratory data reporting environment with the goal of facilitating reporting from clinical laboratories to public health agencies in a way that leverages existing technologies and provides a unified reporting platform for multiple reporting requirements.

Figure 3 provides an overview of the HAI Advisory Committee organizational chart planned for the Maryland HAI prevention planning initiative.

By April 1, 2010, HAI prevention targets for Maryland will be established using available data sets. As part of the analysis process to develop HAI prevention targets, Maryland experience will be benchmarked using data from other states and the CDC. The HAI Advisory Committee will monitor progress in meeting defined prevention targets on an on-going basis.

Figure 3. Healthcare-Associated Infections Advisory Committee: Organizational Chart



2. Establish an HAI Surveillance, Prevention, and Control Program (Level I)

<u>Objective 2.0</u> By February 1, 2010, designate a State HAI Prevention Coordinator with responsibility to lead the development and implementation of the Maryland HAI Prevention Plan and related activities.

<u>Objective 2.1</u> Between January 1, 2010 and April 1, 2010, recruit additional staff required to support the Maryland HAI surveillance, prevention, and control program, including an HAI data analyst, an epidemiologist, and an epidemiologist/informaticist.

<u>Objective 2.2</u> Maintain the Inter-Agency HAI Steering Committee composed of staff from DHMH, the Maryland Health Quality and Cost Council, and Maryland Health Care Commission to oversee work in the four major HAI activity areas: (1) integration, collaboration, and capacity building; (2) reporting, detection, response and surveillance; (3) prevention; and, (4) evaluation, oversight, and communication.

By February 1, 2010, a full-time HAI Prevention Coordinator will be recruited by the Maryland Health Care Commission to lead prevention planning activities and will be responsible for: (1) research and analysis required to define HAI prevention goals and objectives; (2) drafting working papers and plan components for review by the Advisory Committee; (3) developing annual implementation plans targeting activities designed to address planning goals and objectives; (4) developing a strategy to monitor and communicate progress in meeting defined HAI prevention targets; (5) providing staff support to Advisory Committee subcommittees; and, (6) preparing an Annual Report on prevention activities. The Commission will also recruit an HAI data analyst; the DHMH will recruit an epidemiologist and an epidemiologist/informaticist.

An Inter-Agency HAI Steering Committee, formed in September 2009, composed of staff from DHMH, the Maryland Health Quality and Cost Council, and the Maryland Health Care Commission will continue to meet on a regular basis to coordinate activities for this HAI planning initiative. The members of the Inter-Agency Steering Committee include senior staff from all three agencies: Pamela W. Barclay, Director, Center for Hospital Services, Maryland Health Care Commission; Theressa Lee, Chief, Hospital Quality Initiatives, Center for Hospital Services, Maryland Health Care Commission; Nicole Dempsey Stallings, MPP, Director, Maryland Health Quality Cost Council, Department of Health and Mental Hygiene; Mary Mussman, M.D., MPH, Evidence-Based Medicine Workgroup Staff, Maryland Health Quality and Cost Council; David S.B. Blythe, M.D., Acting Assistant Director, Office of Infectious Disease Epidemiology and Outbreak Response and State Epidemiologist; Lucy E. Wilson, M.D., Chief, Center for Surveillance, Infection Prevention and Outbreak Response; Katherine A. Feldman, D.V.M., State Public Health Veterinarian, Center for Zoonotic and Vector-Borne Disease; John P. Krick, Ph.D., Deputy Director, Office of Infectious Disease Epidemiology and Outbreak Response; Brenda J. Roup, PhD, RN, CIC, Nurse Consultant in Infection Prevention

and Control, Office of Infectious Disease Epidemiology and Outbreak Response; and, Pat Ryan, Chief, Emerging Infections Program.

3. Integrate Laboratory Activities (Level I)

Objective 3.0 **By February 1, 2010, hire an epidemiologist/informaticist to assist with Electronic Laboratory Reporting (ELR), which will involve mapping of data elements, and recruiting hospital laboratories to participate in ELR.**

Objective 3.1 **By June 30, 2010, implement transmission of reportable laboratory results via ELR to DHMH, including HAI-specific laboratory data, at two major hospital system laboratories (Johns Hopkins Hospital and University of Maryland Medical Center).**

Objective 3.2 **By June 30, 2010, establish a connection to NHSN as a 'subscriber' to the DHMH NBS-MSS for NHSN to start receiving HAI-specific laboratory data.**

Objective 3.3 **Between July and December 2010, recruit three additional Maryland hospital laboratories to participate in ELR.**

The Electronic Laboratory Reporting (ELR) Subcommittee of the HAI Advisory Committee will be responsible for guiding the on-going development and implementation of efforts to integrate laboratory activities with HAI surveillance, prevention, and control efforts. By February 1, 2010, an epidemiologist/informaticist will be recruited to lead the ELR activities.

The Department of Health and Mental Hygiene (DHMH) has been receiving standards-based (HL7 2.3.1) electronic laboratory reporting (ELR) from Mayo Laboratories and is currently working with the State Public Health Laboratory to initiate ELR from its laboratory information system (LIS) (Starlims) to the National Electronic Disease Surveillance System (NEDSS) Base System (NBS) - Messaging Subscription Service (MSS). In addition, DHMH has started ELR discussions with two of Maryland's hospital laboratories (Johns Hopkins Hospital and University of Maryland Medical Center). Johns Hopkins Hospital Laboratory is in the process of transitioning to a new LIS (Soft Computer) and plans to purchase an ELR interface to capture reportable laboratory results to send to the NBS-MSS. The University of Maryland Medical Center Laboratory is working on technical details to start sending ELR to the NBS-MSS. Both hospital laboratories have said that they will be able to incorporate and send reportable laboratory results from their system/satellite hospital laboratories which will include an additional 10 hospitals in Maryland. With the MSS infrastructure in place, DHMH will be able to continue recruiting hospital and private laboratories for electronic data reporting. By using the existing MSS technology, reporting requirements for HAI-specific laboratory data can be incorporated to satisfy both NEDSS and NHSN reporting requirements. Under this scenario, laboratory results for reportable conditions and those of interest to NHSN would be securely sent to DHMH from a server at each hospital and consumed by MSS. As subscribers to specific

results, NEDSS and NHSN would each receive their respective laboratory reports in their desired format. In some instances, both NEDSS and NHSN would receive copies of the same result, possibly in different formats.

4. Improve Coordination (Level II)

Objective 4.0 **By December 1, 2010, restructure the HAI Advisory Committee to add stakeholders representing key State agencies and other appropriate organizations.**

Objective 4.1 **Based on the priorities established by the HAI Advisory Committee during the planning process, add additional stakeholders to the Advisory Committee as required to improve coordination and strengthen expertise, including pharmacists, kidney dialysis centers, and home health agencies.**

Consistent with expanding the role of the HAI Advisory Committee to include development of the Maryland HAI Prevention Plan, the Commission has taken steps to add key stakeholder organizations to the Committee. In December 2009, the Advisory Committee was been expanded to include two agencies in the Department of Health and Mental Hygiene: the Office of Health Care Quality; and, the Information Resources Management Administration.

The Office of Health Care Quality (OHCQ) is the agency within the Department of Health and Mental Hygiene charged with monitoring the quality of care in Maryland's 8,000 health care facilities and community residential programs. The OHCQ licenses and certifies health care facilities in Maryland. Through licensing, a facility gains the authority to operate in the State; through certification, a facility obtains the right to participate in the Medicare and Medicaid programs. The OHCQ activities are guided by State and federal regulations, which set forth the minimum standards for provision of care. The OHCQ conducts surveys to determine compliance; when problems or deficiencies are noted, the OHCQ initiates administrative action against facilities that violate rules and regulations. If a facility fails to correct problems and is unable or unwilling to do so, the OHCQ may impose sanctions such a license revocation, fines, bans on admission, or other restrictions on the operating license. The OHCQ also educates providers, consumers, and other stakeholders through written materials, presentations, its website, and at conferences and seminars.

The mission of the Information Resources Management Administration (IRMA) is to coordinate, plan, develop, and maintain Department-wide information resources necessary to enable DHMH to provide technological support, information services and electronic communications in a prompt, secure and reliable fashion; to recommend uniform information technology policies, standards and procedures; and to assure access to accurate, timely and complete information in accordance with the Department of Health and Mental Hygiene's Information Resources Strategic Plan.

In addition, the HAI Advisory Committee has been expanded to include the Delmarva Foundation for Medical Care (Delmarva). Delmarva, which is the Medicare Quality

Improvement Organization (QIO) for Maryland and the District of Columbia, joined the HAI Advisory Committee in December 2009. Delmarva designs and facilitates quality improvement projects in collaboration with hospitals, nursing homes, home care providers, doctors' offices, and managed care plans. These services include technical assistance, collaborative improvement projects, peer-to-peer learning, training and education on best practices, and other ways for providers to learn, share, and make dramatic improvements in care.

Based on the priorities established by the HAI Advisory Committee during the planning process, additional stakeholders will be added to the Advisory Committee as required to improve coordination and strengthen expertise. Over the next year, the Advisory Committee will seek a pharmacological representative. Several initiatives that the HAI Advisory Committee is involved with, including SCIP measures, MDROs, and immunization for influenza, are areas that involve pharmacy issues. The addition of this expertise will also contribute to discussions and activities designed to promote appropriate antibiotic use. In addition, the Advisory Committee will reach out to kidney dialysis centers and home health agencies as resources become available to extend HAI prevention work to non-hospital settings.

5. Facilitate Use of Standards-Based Formats by Healthcare Facilities for the Purpose of Electronic Reporting of HAI Data (Level II)

Objective 5.0 On an on-going basis, participate in the discussions regarding connectivity of Electronic Laboratory Reporting to the Health Information Exchange (HIE) now under development in Maryland.

Recognizing that the electronic exchange of information between public health agencies (and between divisions within public health agencies) and clinical care entities is essential for a functional infectious diseases surveillance, prevention, and control program, as well as a necessary component of health reform, Maryland is actively engaged in several efforts around health information systems. The Maryland Health Care Commission is leading statewide efforts to plan the development of a Health Information Exchange (HIE) which is intended to transform the current health care system by ensuring that consumers have access to the highest quality and most efficient and safest care by giving providers access to the right information at the right time. Building a successful HIE requires considerable planning in order to implement a business model that creates incentives for use and recognizes the need for funding from those stakeholders that derive value and benefits for using technology to access and share electronic health information. A statewide HIE will create an interconnected, consumer-driven electronic health care system that enhances health care quality, safety, and effectiveness, and reduces health care costs. DHMH has reached out to representatives from the Maryland HIE initiative to coordinate connectivity to the HIE to eliminate technology redundancy. In August 2009, the Health Services Cost Review Commission approved MHCC's recommendation to fund the Chesapeake Regional Information System for our Patients (CRISP) for up to $10 million in startup funding. CRISP is organizing a series of committees and seeking stakeholder involvement on those committees and a policy board.

The Office of the National Coordinator for Health Information Technology (ONC) released two health IT grant applications under the *American Recovery and Reinvestment Act of 2009* (ARRA) on August 20th. MHCC staff submitted the application for the *State Health Information Exchange Cooperative Agreement Program* in advance of the October 16th due date. Included in the grant application was the State Health IT Plan, which is comprised of a strategic and operational plan for implementing HIE and advancing EHR adoption in the State, which is available on the MHCC website. This grant will improve and expand HIE services to reach all providers in an effort to improve the quality and efficiency of health care. ONC advised staff that approximately $9M has been appropriated for Maryland and funding is based on matching funds. Staff assisted CRISP in the development of the response to the other ONC grant, *Health Information Technology Extension Programs: Regional Centers Cooperative Agreement Program*, which will fund a non-profit entity to provide education, awareness, and technical assistance for the adoption and meaningful use of EHRs. The average funding award for recipients of the grant is approximately $8.5 million and is also based on matching funds. The application was submitted in advance of the November 3rd due date.

Maryland is also the first state to build on the Medicare and Medicaid adoption incentives under the *American Recovery and Reinvestment Act of 2009* by passing HB 706 (2009), which requires State-regulated payers to provide incentives for the adoption of electronic health records (EHRs) that parallel the requirements of federal incentives. Among other things, HB 706 requires state-regulated payers to offer monetary incentives for EHR adoption and meaningful use beginning in 2011, and establish disincentives that begin in 2015. Stakeholder discussions over the next several months are expected to serve as the framework for drafting proposed regulations and in formulating an update to the General Assembly on the progress in developing these regulations.

As part of the efforts towards HAI prevention and ongoing implementation of NEDSS and the NHSN, DHMH has actively worked to develop Electronic Laboratory Reporting (ELR). The NEDSS Base System (NBS) is configured for secure ELR over the internet and is currently receiving electronic laboratory results directly from Mayo Laboratories into a NEDSS production environment. Plans are underway to implement ELR from additional laboratories, including the DHMH Public Health Laboratory and a number of hospital laboratories in Maryland. Of note is that DHMH has recently deployed the CDC's Message Subscription Service (MSS) as a venue for electronic laboratory reporting. MSS combines the strengths of Orion Rhapsody™, a commercial Enterprise Application Integration engine with the NEDSS Brokering Tool to allow the Department to receive messages in any format and convert these data into standard or customized representations through a series of translation and validation tasks. These data (e.g., laboratory results) can then be consumed by NEDSS or provided to other "subscribers" (e.g., NHSN) in a variety of formats. The technology required for ELR is complex and expensive. Translating and mapping data elements from multiple and disparate message streams is labor intensive for both the sender and the recipient and requires a high level of expertise. Leveraging this available technology and infrastructure to achieve reporting to multiple systems will substantially reduce costs and lessen the burden on reporting facilities by eliminating the need to establish duplicative reporting systems.

Planning for HAI Surveillance, Detection, Reporting, and Response

1. Improve HAI Outbreak Detection and Investigation (Level I)

Objective 1.0 Maintain an on-going training program in infection prevention and control for long term care facility staff, DHMH Office of Health Care Quality surveyors, and local health department communicable disease staff.

Objective 1.1 Maintain an annual training program for all local health department staff who may participate in outbreak investigations, including sanitarians, nurses, and epidemiologists; and, maintain the annual Communicable Disease Update for all local health department personnel to provide the latest information on communicable disease issues, including HAIs.

Since 2004, DHMH Office of Infectious Disease Epidemiology and Outbreak Response has partnered with Lifespan Mid-Atlantic Beacon Institute, the educational arm of one of the long term care trade groups in Maryland, to conduct a basic infection prevention and control course for long term care staff (primarily RNs), DHMH Office of Health Care Quality (OHCQ) surveyors, and local health department communicable disease staff. The course covers basic subjects, such as surveillance for HAIs, isolation precautions, and outbreak investigations and response. The course is offered twice per year. To date, 628 long term care staff, 57 OHCQ surveyors, and 89 local health department staff have been trained. The maintenance of this training program will be a key activity in improving HAI outbreak detection and investigation. In addition to the Infection Control Institute discussed above, the DHMH Office of Infectious Disease Epidemiology and Outbreak Response offers an annual training program for all local health department staff who might participate in outbreak investigations. Both of these activities strengthen the capacity for outbreak detection and investigation and will be maintained as part of the Maryland HAI Prevention Plan.

(Also Refer to Discussion under Activity 3-Improve Communication of HAI Outbreaks and Infection Control Breaches –Objective 3.0)

2. Enhance Laboratory Capacity for State and Local Detection/Response to New and Emerging HAI Issues (Level I)

Objective 2.0 By July 1, 2010, conduct HAI activities that have a significant laboratory component regarding characterization of antimicrobial resistance.

The Multi-Drug Resistant Organism (MDRO) Prevention Collaborative will convene a multidisciplinary advisory group of health care partners to address the issue of surveillance and prevention of MDROs, specifically MDR-*Acinetobacter,* in health care settings. Initially, the

Collaborative will work to establish a consensus and prioritization of its goals in the prevention arena, especially as it relates to acute and long-term care health facilities. Collaborative activities that involve a laboratory component include:

- Identify optimal methods of patient screening, optimal laboratory techniques for screening and antimicrobial resistance testing, and a definition of facility disease outbreaks, based on review of the literature and partner experience.
- Implement a multi-center period prevalence survey of MDR-*Acinetobacter baumannii* in 2-3 acute care hospitals and 2-3 long term care facilities. This "quick look" will provide preliminary information to guide prevention planning.
- Pilot a discharge/transfer summary notification system that addresses the important issue of inter-facility transfer among patients infected with multi-drug resistant organisms, especially transfers between acute care hospitals and long term care facilities. It is important to understand and monitor the reservoirs and transmission patterns in different regions of Maryland, especially as patients are transferred from facility to facility. This consideration could lead to a prevention goal to develop a multi-center prevention initiative to identify and label all patient discharge/transfer summaries with notification of infection or colonization with MDROs.

Regulations promulgated in 2008 for communicable disease reporting (COMAR 10.06.01.03C) require laboratory specimens for many communicable diseases reportable under Maryland statute to be forwarded to the DHMH Public Health Laboratories for confirmation and further characterization with subsequent public health action. This has allowed the characterization of drug resistance in both bacterial and viral pathogens, and has also allowed for improved cluster recognition through molecular techniques such as pulsed field gel electrophoresis (PFGE).

3. Improve Communication of HAI Outbreaks and Infection Control Breaches (Level I)

<u>Objective 3.0</u> By July 1, 2010, promulgate regulations regarding reportable diseases and conditions to implement HB 1468 (Public Health Surveillance-Confidentiality).

House Bill 1468 (Public Health Surveillance-Confidentiality) passed in the 2009 Maryland General Assembly session provides additional guarantees of confidentiality for all associated reports collected in conjunction with an investigation of a reportable disease or condition collected under Md. Code Ann., Health-General §§18-201, 18-202 and 18-205. This bill clarifies the confidentiality of records relating to public health investigations of persons with evidence of any communicable disease or condition. While initial reports of communicable disease and conditions have always been confidential, certain information gathered in the course of a subsequent public health investigation, including certain personal information identified to an individual was not protected under the former statute. This bill provides confidentiality to the specific information resulting from and obtained during an investigation of a report of a communicable disease or condition under these statutes. Regulations are scheduled to be promulgated during the first half of 2010.

4. Identify At Least Two Priority Prevention Targets for Surveillance (Level II)

<u>Objective 4.0</u> By April 1, 2010, identify specific HAI prevention targets for Maryland for Central Line-Associated Blood Stream Infections (CLABSI) and Surgical Site Infections.

<u>Objective 4.1</u> By April 1, 2011, identify specific HAI prevention targets for Maryland for Multi-Drug Resistant Organisms and Clostridium *difficile* – Associated Disease.

<u>Objective 4.2</u> By April 1, 2010, identify specific HAI prevention targets for HAI process measures, including Health Care Worker Influenza Vaccination Rates, Surgical Care Improvement Project Measures, and other related measures.

Consistent with the HAI Action Plan adopted by the U.S. Department of Health and Human Services, the HAI Advisory Committee will identify improvement targets in the areas of CLABSI and SSIs initially. In year two of this planning effort, prevention targets for MDROs will be established. In addition, the HAI Advisory Committee will establish targets for process measures related to infection control and prevention.

5. Adopt National Standards for Data and Technology to Track HAIs (Level II)

<u>Objective 5.0</u>. Maintain use of the National Healthcare Safety Network (NHSN) system for collecting HAI data sets, where appropriate, to provide the ability to benchmark Maryland with national experience.

<u>Objective 5.1</u> Maintain collection of Central Line-Associated Blood Stream Infections (CLABSI) for hospital inpatient adult critical care units, pediatric critical care units, and neonatal critical care units (including Level II/III and Level III).

<u>Objective 5.2</u> Maintain the collection of data on Health Care Worker Influenza Vaccination in acute care hospitals; expand data collection to include nursing homes; and, evaluate the expansion of this process measure to include ambulatory surgical facilities and home health agencies.

<u>Objective 5.3</u> Effective April 1, 2010, expand HAI data reporting requirements for Maryland hospitals to include selected SSIs using the National Healthcare Safety Network (NHSN) system.

Objective 5.4 **Effective January 1, 2011, expand HAI data reporting requirements for Maryland hospitals to include the Ventilator-Associated Pneumonia (VAP) Bundle.**

Objective 5.5 **Effective January 1, 2011, expand HAI data reporting requirements for Maryland hospitals to include Multi-Drug Resistant Organisms and Clostridium *difficile*-Associated Disease (MDRO-CDAD Module) for all Maryland hospital intensive care unit patients using the National Healthcare Safety Network (NHSN) system.**

Objective 5.6 **Periodically evaluate recommended HAI process and outcome measures based on medical evidence and experience to determine the need to add or discontinue measures.**

Maryland has made significant progress in building the foundation for a comprehensive reporting system designed to support HAI prevention initiatives. Based on recommendations from the TAC in 2007, MHCC required all acute care hospitals in the State of Maryland to join the NHSN user group for the State of Maryland and use this system as the primary vehicle for collecting data to be publicly reported on HAIs. Maryland is currently using NHSN for reporting CLABSI. As noted earlier, Maryland plans to implement data collection using NHSN for selected SSIs and MDRO events.

The current status of the NHSN and other HAI data collection activities is described below:

Central Line-Associated Blood Stream Infections (CLABSI). Pursuant to Health General Article §19-134(e)(6) and COMAR 10.25.04, Maryland hospitals began reporting CLABSIs in All Intensive Care Units (ICUs) to the Commission using the NHSN system effective July 1, 2008. This reporting requirement, which covers 46 of the 47[1] non-Federal, acute care hospitals located in Maryland, encompasses inpatient adult critical care units, pediatric critical care units, and neonatal critical care units (including Level II/III and Level III). Data reported for fiscal year 2009 will cover about 1,200 intensive care unit beds and 400 neonatal intensive care bassinets. Hospitals are required to report data on a monthly basis to the Commission. To provide the ability to link data sets, the Commission requires Maryland hospitals to use the Patient ID# field on the CLABSI reporting form to report the same medical record number used to identify patients in the Maryland Hospital Discharge Data Base collected by the Health Services Cost Review Commission.

Surgical Care Improvement Project (SCIP). In 2006-07, the Commission began collecting and reporting HAI information on three process measures designed to prevent infections for patients undergoing hip, knee, and colon surgery: (1) proportion of patients receiving antimicrobial prophylaxis within one hour prior to incision (SCIP-INF-1); (2) proportion of patients receiving the appropriate antimicrobial agent based on current guidelines (SCIP-INF-2); and, (3) proportion of patients whose antimicrobial prophylaxis is discontinued

[1] One Maryland acute care hospital, McCready Memorial Hospital, does not operate an intensive care unit and has been exempted from this reporting requirement.

within 24-hours following surgery (SCIP-INF-3). These measures, referred to as Surgical Care Improvement Project (SCIP) measures, have been endorsed by the National Quality Forum (NQF) and adopted by the Centers for Medicare and Medicaid Services (CMS), the Joint Commission, and Hospital Quality Alliance (HQA). As of January 1, 2009, the MHCC expanded its collection of SCIP INF 1-3 measures to include all surgical strata (CABG, other cardiac, hysterectomy, and vascular surgery). The MHCC added additional SCIP measures, effective for discharges after January 1, 2009: cardiac surgery patients with controlled 6 a.m. postoperative serum glucose (SCIP-INF-4); surgery patients with appropriate hair removal (SCIP-INF-6).

Surgical Site Infections. Surgical Site Infections (SSI) are part of the Phase II data collection plan recommended by the HAI Technical Advisory Committee. The Technical Advisory Committee recommended that data collection and reporting of SSIs focus on Class I (clean) or Class II (clean contaminated) surgeries. The HAI Advisory Committee has worked to identify surgeries that should be included in the SSI implementation plan. Because surgeries chosen to be reported must be performed with adequate frequency to permit meaningful comparisons between institutions, the Advisory Committee has reviewed hospital-specific data on the volume of surgery cases by category. In addition, the Committee reviewed information on hospital infection prevention and control practices involving surgical services. Data collected in the Commission's 2009 annual survey of infection prevention and control practices indicate that a large proportion of hospitals currently perform surveillance on SSIs. About one-half of Maryland hospitals report that they are currently using or have future plans to use NHSN for SSI surveillance. Of those hospitals, hip and knee replacement surgery were the most frequent surgeries included in SSI surveillance. Based on this review and analysis, the Advisory Committee recommended at its May 2009 meeting that SSI work initially focus on hip replacement, knee replacement and coronary artery bypass graft (CABG) surgeries. This recommendation was circulated to hospitals and other interested organizations and posted on the Commission's website for public comment.

Multi-Drug Resistant Organisms. As recommended by the Technical Advisory Committee, a plan for reporting AST for MRSA in ICUs has been developed and implemented. Effective January 1, 2009, Maryland hospitals are required to collect data on AST for MRSA in ICUs, including all units defined as inpatient adult critical care and pediatric critical care (neonatal intensive care units are excluded from this reporting requirement). Hospitals are reporting data on the total number of ICU admissions and the number of patients admitted to the ICU who had an anterior nares swab cultured for MRSA on a quarterly basis using an online survey instrument. Data for the first quarter of 2009 (January 1, 2009 - March 31, 2009) was reported to the Commission on May 1, 2009; data for the second and third quarters of 2009 (April-June 2009 and July-September 2009) was reported to the Commission on August 1, 2009 and November 1, 2009, respectively. Each hospital receives quarterly feedback reports that provide its AST data (total ICU admissions, admissions with anterior nares swab cultured for MRSA, percent of total ICU admissions with AST) and benchmark data reflecting the average statewide proportion of ICU admissions with AST for MRSA, and the average for the top five and lowest five hospitals.

Health Care Worker Influenza Vaccination. For the 2008-2009 reporting period, the Commission conducted a pilot survey to determine the feasibility of collecting uniform data on HCW influenza vaccination rates. In this pilot survey, Maryland non-federal, acute care hospitals were requested to report aggregate data on all paid, full-time and part-time employees and house staff (defined as residents and interns) who received FluMist® or injectable flu vaccine on-site or off-site between October 1, 2008 and March 31, 2009 using on on-line survey. All Maryland hospitals participated in this pilot survey. During June 2009, each hospital received a report that provided its HCW influenza vaccination rate data (total employees, employees who received flu vaccine, and percent of total employees receiving flu vaccine) and benchmark data reflecting the average statewide proportion of staff receiving the flu vaccine and the average for the top five and lowest five hospitals. Based on the results of the pilot survey, the Advisory Committee revised the survey instrument for the 2009-2010 reporting period which covers the period September 1, 2009-April 15, 2010.

Over the next two years, Maryland will maintain use of the NHSN system for collecting HAI data sets, where appropriate, to provide the ability to benchmark Maryland with national experience. The collection of Central Line-Associated Blood Stream Infections (CLABSI) for hospital inpatient adult critical care units, pediatric critical care units, and neonatal critical care units (including Level II/III and Level III), initiated in 2008, will be maintained. Using the NHSN system, Maryland plans to expand the scope of HAI data collection to strengthen surveillance and prevention efforts. Effective April 1, 2010, data reporting requirements for Maryland hospitals will be expanded to include selected SSIs. Effective January 1, 2011, HAI data reporting requirements for Maryland hospitals will be expanded to include the Multi-Drug Resistant Organisms and Clostridium *difficile* –Associated Disease (MDRO-CDAD Module) for all Maryland hospital intensive care unit patients using the NHSN system.

Maryland will also maintain the collection of data on Health Care Worker Influenza Vaccination in acute care hospitals; expand reporting to include nursing homes; and, evaluate the expansion of this process measure to include ambulatory surgical facilities and home health agencies. HAI data reporting requirements for Maryland hospitals will be expanded to include the Ventilator-Associated Pneumonia (VAP) Bundle by January 2011. The HAI Advisory will periodically evaluate recommended HAI process and outcome measures based on medical evidence and experience to determine the need to add or discontinue measures.

6. Develop State Surveillance Training Competencies (Level II)

<u>Objective 6.0</u>. Maintain ongoing training sessions of DHMH and local health department surveillance staff in the National Electronic Disease Surveillance System (NEDSS) for collecting data on reportable infectious diseases and conditions in Maryland.

<u>Objective 6.1</u>. By March 31, 2010, provide a statewide training seminar, in partnership with the Maryland Hospital Association, the Metropolitan Washington and Baltimore Chapters of APIC, and other stakeholders, on

use of the National Healthcare Safety Network (NHSN) Surgical Site Infection (SSI) module.

<u>Objective 6.2</u>. By December 31, 2010, provide a statewide training seminar, in partnership with the Maryland Hospital Association, the Metropolitan Washington and Baltimore Chapters of APIC, and other stakeholders, on use of the National Healthcare Safety Network (NHSN) Multi-Drug Resistant Organism (MDRO) module.

<u>Objective 6.0</u>. Maintain on-going participation in monthly National Healthcare Safety Network (NHSN) State User's Conference Calls.

Since 2006, Maryland public health staff has used the NEDSS Base System (NBS) for reporting and surveillance of "investigations" of all "general communicable disease" conditions (excluding certain STDs and HIV/AIDS). Beginning January 1, 2009, tuberculosis was added as a condition tracked in NEDSS. The system is used by all of Maryland's 24 local (county and city) health departments. More than 76,000 investigations have been entered since the NBS system began production on April 3, 2006. Investigation data from current cases are reported to the CDC via the PHIN messaging standards incorporated within the NBS.

DHMH staff provide post-implementation training of central office and local health department (LHD) staff through full-day training sessions in basic and advanced skills, and conduct additional sessions devoted exclusively to use of system reports. More than 100 users have attended these sessions. Special training sessions have also been conducted for LHD users as they are transitioned to use of electronic tokens for increased security in accessing the system. "Help Desk" (telephone) support is provided to respond to NBS user needs for technical and programmatic assistance.

In 2010, Maryland will implement statewide data collection for selected surgical site infections (SSIs) using the NHSN system. Statewide data collection for multi-drug resistant organisms (MDROs) using NHSN will be implemented in 2011. To support implementation of these reporting efforts, statewide training seminars will be held prior to the initiation of data collection. These seminars will include presentations from experts on CDC data element definitions and data collection protocols for each module.

Maryland State agency staff involved in HAI activities will also continue to participate in monthly NHSN State User Conference Calls that provide information on NHSN developments and an opportunity to share information with other States.

7. Develop Tailored Data Analysis Reports (Level II)

<u>Objective 7.0</u> By April 1, 2010, develop format for publicly reporting aggregate and hospital-specific CLABSI on the Maryland Hospital Performance Evaluation Guide.

Objective 7.1 **By January 1, 2011, develop format for publicly reporting aggregate and hospital-specific SSI on the Maryland Hospital Performance Evaluation Guide.**

Objective 7.2 **By July 1, 2011, develop format for publicly reporting aggregate and hospital-specific MDRO data on the Maryland Hospital Performance Evaluation Guide.**

By February 2010, it is anticipated that Maryland will have available audited CLABSI data for a 12-month period. In 2010-2011, data on SSIs will start to become available. Maryland will develop a State reporting system to keep stakeholder organizations informed on progress in meeting HAI prevention targets for CLABSI and SSIs. Hospital-specific data on CLABSI and SSIs will be reported and updated regularly on the web-based Maryland Hospital Performance Evaluation Guide.[2] The Hospital Guide, which receives 35,000-40,000 visits annually, includes information profiling services offered by Maryland hospitals as well as performance data on a range of clinical quality measures. The HAI Advisory Committee, with the assistance of its HAI Process and Outcome Measures Subcommittee, will study and recommend the format for reporting aggregate as well as hospital-specific data on HAI for two target audiences: health care professionals; and, consumers.

Building on the experience with CLABSI and SSIs, the HAI Advisory Committee, with the assistance of its HAI Process and Outcome Measures Subcommittee, will study and recommend the format for reporting aggregate as well as hospital-specific data on MDROs. Data on MDROs will be incorporated in the State reporting system to keep stakeholder organizations informed on progress in meeting HAI prevention targets. Hospital-specific data on MDROs will be reported and updated regularly on the web-based Maryland Hospital Performance Evaluation Guide.

8. Validate Data Entered into HAI Surveillance (Level III)

Objective 8.0 **Based on the on-site CLABSI audit, develop on-going protocol for data quality review and validation of CLABSI data reported to the National Healthcare Safety Network (NHSN) system by Maryland hospitals.**

Objective 8.1 **By July 1, 2010, develop and implement protocol for data quality review and validation of Maryland hospital SSI data reported to the National Healthcare Safety Network (NHSN) system; provide feedback regarding HAI data validation results and discuss NHSN user technical questions.**

Objective 8.2 **By July 1, 2011, develop and implement protocol for data quality review and validation of Maryland hospital MDRO data reported to the National Healthcare Safety Network (NHSN) system; provide feedback**

[2] Available at: http://mhcc.maryland.gov/consumerinfo/hospitalguide/index.htm

regarding HAI data validation results and discuss NHSN user technical questions.

The Commission is currently conducting an on-site audit of CLABSI data for fiscal year 2009 (July 1, 2008-June 30, 2009). Following completion of the validation study, the Commission will publicly report CLABSI data on the Maryland Hospital Performance Evaluation Guide.

To ensure that Maryland hospitals are accurately reporting rates of SSI and appropriately using NHSN definitions, a protocol for SSI data quality review and validation will be developed. In order to implement this validation project, Maryland will contract with a vendor. The contractor will develop a plan for an on-going data quality review and validation process for data reported for SSIs via the NHSN system. Based on a review of available literature and recommendations from professional organizations and NHSN, the plan should provide: (1) a framework for selecting hospitals for review; (2) a methodology for selecting records to be reviewed; (3) a system for record review, including the development of correspondence and instructions to hospitals to facilitate the collection of data required for data validation; and, (4) a process for reviewing audit results with hospitals and modifying data reported to reflect corrections. The results of the audit will be used to provide focused training, where appropriate, to hospital IPs and data collection staff.

To validate MDRO data, Maryland will contract with a vendor for data quality review and validation. Building on the experience in auditing CLABSI and SSI data, the plan developed for auditing data will provide: (1) a framework for selecting hospitals for review; (2) a methodology for selecting records to be reviewed; (3) a system for record review, including the development of correspondence and instructions to hospitals to facilitate the collection of data required for data validation; and, (4) a process for reviewing audit results with hospitals and modifying data reported to reflect corrections. The results of the audit will be used to provide focused training, where appropriate, to hospital IPs and data collection staff.

9. Develop Preparedness Plans for Improved Response to HAI (Level III)
10. Collaborate with Professional Licensing Organizations (Level III)

The HAI Advisory Committee will consider activities in these two areas in a future update of the Maryland HAI Prevention Plan.

11. Adopt Integration and Interoperability Standards for HAI Information Systems and Data Sources (Level III)
12. Enhance Electronic Reporting and Information Technology (Level III)

The HAI Advisory Committee will consider activities in these two areas in a future update of the Maryland HAI Prevention Plan.

(For information related to Reporting HAI Data to the Public, please refer to discussion under HAI Communication and Evaluation Planning-Activity 3- Provide Consumers Access to Useful Healthcare Quality Measures)

13. Risk-Adjusted HAI Data for Comparisons between Hospitals (Level III)

Objective 13.0 By July 1, 2011, develop appropriate risk-adjustment methodologies for outcome measures that require adjustment for patient-specific factors associated with increased risk of infection.

In analyzing HAI outcome measures, particularly for public reporting, it is important to develop risk-adjustment methodologies where patient-specific factors are associated with increased risk of infection. The Process and Outcomes Measures Subcommittee of the HAI Advisory Committee will consider this issue in developing recommendations governing public reporting of HAI data on the Hospital Performance Evaluation Guide.

14. Enhance Surveillance and Detection of HAIs in Non-Hospital Settings (Level III)

Objective 3.0 By July 1, 2011, consider expanding surveillance and detection to non-hospital settings, where appropriate.

Working with the HAI Advisory Committee, the MHCC, DHMH, and the Maryland Health Quality and Cost Council will work to expand the hand hygiene and MDRO-*Acinetobacter* prevention collaboratives to non-hospital settings. In addition, consideration will be given to expanding the collaboratives to specialty (non-acute) hospitals in Maryland, including rehabilitation, psychiatric, and chronic care hospitals.

Planning for HAI Prevention Activities

1. Implement HICPAC Recommendations (Level I)

Objective 1.0 **By October 1, 2010, develop strategies for implementation of HICPAC recommendations in the following areas: (1) prevention of intravascular catheter-associated infections; and, (2) surgical site infections.**

Objective 1.1 **By July 1, 2011, develop strategies for implementation of HICPAC recommendations in the area of multi-drug resistant organisms.**

The Healthcare Infection Control Practices Advisory Committee (HICPAC) is a federal advisory committee that provides guidance to the Centers for Disease Control and Prevention and the Department of Health and Human Services regarding the control and prevention of healthcare-associated infections. As part of its HAI Prevention Plan, Maryland will focus initially on developing strategies to assess implementation of HICPAC recommendations in the areas of intravascular catheter-associated infections and surgical site infections. In these areas, Maryland will have data to establish a baseline and the ability to monitor progress in achieving improvement targets. By July 2011, strategies for implementing HICPAC recommendations in the area of multi-drug resistant organisms will be targeted.

2. Establish Prevention Working Group (Level I)

Objective 2.0 **By March 1, 2010, establish an Infection Prevention Subcommittee to guide the work of the Prevention Collaboratives and related infection control and prevention activities.**

Over the summer, the HAI Advisory Committee established a Hand Hygiene and Infection Prevention Subcommittee to begin work on the Maryland Hospital Hand Hygiene Collaborative. This Subcommittee completed its work in August 2009 and has transitioned to serve as the Expert Panel for the Hand Hygiene Collaborative[3]. To support the work of the HAI Advisory Committee, an on-going Infection Prevention Subcommittee will be established by March 1, 2010 to assist with the work of two prevention collaboratives being established under this HAI planning initiative (Refer to Prevention Activity 3 below). The Infection Prevention Subcommittee will also be responsible for developing an inventory of State-level infection prevention and control programs; identifying gaps in existing infection prevention and control programs; and, recommending strategies to increase impact where appropriate.

[3] *Report and Recommendations on Implementation of a Statewide Hospital Hand Hygiene Campaign*, prepared by the Healthcare-Associated Infections Advisory Committee and its Hand Hygiene and Infection Prevention Subcommittee, August 31, 2009 (http://mhcc.maryland.gov/healthcare_associated_infections/hai/handhygiene.pdf)

3. Establish HAI Collaboratives (Level I)

<u>Objective 3.0</u> By January 1, 2010, initiate the Maryland Hospital Hand Hygiene Collaborative; implement the collection of the Maryland Hand Hygiene Core Data Set at Maryland acute care hospitals using trained observers whose task is unknown to the staff being observed to collect data on adherence to hand hygiene; and, provide feedback to participating hospitals with Maryland performance benchmarks.

<u>Objective 3.1</u> By July 1, 2010, initiate the planning and design phase of the Multi-Drug Resistant Organism (MDRO) -*Acinetobacter* Prevention Collaborative; by January 1, 2011, initiate the MDRO- *Acinetobacter* Prevention Collaborative.

<u>Objective 3.2</u> By July 1, 2010, identify on-going funding to support the key activities of the Maryland Hospital Hand Hygiene Collaborative; by July 1, 2011, identify on-going funding to support the key activities of the MDRO-*Acinetobacter* Prevention Collaborative.

Under the leadership of the Maryland Patient Safety Center (MPSC), Maryland has undertaken a number of collaboratives designed to address HAIs. The "Patient Safety Act of 2001," passed by the Maryland General Assembly, set a foundation for the creation of the Maryland Patient Safety Center (MPSC). Under that law, MHCC, with input from the DHMH, was charged to study the feasibility of reducing the number of preventable adverse medical events in Maryland. From this study emerged the recommendation to establish the MPSC as a key component of a state plan to improve patient safety. Several subsequent actions set creation of the MPSC in motion. First, the General Assembly endorsed this concept in 2003 by including a provision in legislation to allow the MPSC to have medical review committee status, thereby making the proceedings, records, and files of the MPSC confidential and not discoverable or admissible as evidence in any civil action. Second, the Maryland Hospital Association and the Delmarva Foundation were jointly selected as operators of the Center for a three-year period starting in January 2004. The MPSC was subsequently re-designated by the Commission as the State's patient safety center for an additional five years—through 2014.

In 2005, MPSC sponsored an ICU Safety and Culture Collaborative aimed at eliminating preventable death and illness associated with healthcare-associated blood stream infections and pneumonia in patients on ventilators. In 2008-9, MPSC expanded the use of Positive Deviance (PD) and CDC-defined standardized outcomes measurement to decrease the number of people infected with MRSA as a result of their interactions with participating healthcare facilities and to expand boundaries of infection prevention responsibility to include every profession and vocation within our targeted healthcare settings. The MPSC is currently engaged in a Perinatal Collaborative designed to prevent adverse outcomes by standardizing electronic fetal monitoring language, providing training in team coordination and teamwork behaviors, and assessing the safety culture.

Maryland has enlisted the support of the MPSC to implement the Maryland Hospital Hand Hygiene Collaborative designed to prevent HAIs in Maryland hospitals. Planning for implementation of this Collaborative began in August 2009 with the completion of a *Report and Recommendations on Implementation of a Statewide Hospital Hand Hygiene Campaign* by the HAI Advisory Committee and its Hand Hygiene and Infection Prevention Subcommittee. That Report recommended that the Maryland Patient Safety Center implement a statewide hand hygiene campaign. Following action in September 2009 by the Maryland Health Quality and Cost Council to accept the Report and Recommendations of the HAI Advisory Committee and its Subcommittee, planning for the Collaborative was initiated.

A statewide kickoff meeting to begin implementation of the Maryland Hospital Hand Hygiene Collaborative was held in November 2009. Two webinars have been held to provide training on the data collection and reporting tools being used to support the Collaborative. The Infection Prevention Subcommittee of the HAI Advisory Committee will serve as the Expert Panel to the Collaborative. The goal of the Collaborative is to collect a standard data set for measuring hand hygiene compliance, provide timely feedback to participating hospitals, and monitor improvements in hand hygiene over time. Data reflecting HAI outcome measures will be tracked to assess the impact of hand hygiene compliance in preventing HAI. To ensure the reliability of the data, the measurement methodology will employ observers whose task is unknown to the staff being observed who are trained using a standard set of materials. In this manner, inter-rater agreement will be established to facilitate the collection of data that can be compared across institutions. As of December 2009, 44 of the 47 acute care hospitals in Maryland are participating in the Maryland Hospital Hand Hygiene Collaborative. Information regarding the Maryland Hospital Hand Hygiene Collaborative is available at: http://www.marylandpatientsafety.org/html/collaboratives/hand_hygiene/index.html

The goal of the Multi-Drug Resistant Organism (MDRO) Prevention Collaborative is to establish and convene a multidisciplinary advisory group of health care partners to address the issue of surveillance and prevention of MDROs, including MRSA, MDR-*Acinetobacter, C. difficile,* vancomycin-resistant *Enterococcus (*VRE) in health care settings. MDROs have increased over the past decade and are an important patient safety concern for health care facilities, health care providers, and policymakers. Multi-drug resistant (MDR) *Acinetobacter baumannii*, for example, is a rapidly emerging pathogen in the health care setting, and is recognized to be among the most difficult antimicrobial-resistant gram-negative bacilli to control and treat. Generally, *Acinetobacter* bacteria are commonly found in soil and water, but can also reside on skin. Most people exposed to *Acinetobacter* do not develop signs or symptoms of infection; however, invasive infections, including serious and fatal infections, can occur, such as bacteremia, pneumonia, meningitis, urinary tract infection, and wound infection. Identified risk factors for infection include immunosuppression, complicated skin wounds and ulcers, ICU admission, vascular access, and mechanical ventilation. Healthcare workers, as well as hospital and long-term care patients can also be colonized with *Acinetobacter*, including MDR-*Acinetobacter*.

Initially, the Collaborative will work to establish a consensus and prioritization of its goals in the prevention arena, especially as it relates to acute and long-term care health facilities. With recognition that this Collaborative will garner partners with extensive experience regarding

multi-drug resistant organisms, prevention goals could vary and a decision of how to prioritize these goals would vary according to the makeup of the partners. There are numerous potential prevention goals that could be implemented by this working group, and, some, but not all, of the following will be selected by the Collaborative:

- Identify, by consensus, optimal methods of patient screening, optimal laboratory techniques for screening and antimicrobial resistance testing, and a definition of facility disease outbreaks, based on review of the literature and partner experience.
- Utilize data submitted to the NHSN and implemented as a result of Activity B from the MDRO NHSN module.
- Implement a multi-center period prevalence survey of MDR-*Acinetobacter baumannii*. in 2-3 acute care hospitals and 2-3 long term care facilities. This "quick look" would provide preliminary information to guide prevention planning.
- Perform a multi-center survey of practices related to multi-center MDR-*Acinetobacter* surveillance, prevention, treatment and infection control in acute care settings. This survey could assist in creating regional guidance on best practices.
- Pilot a discharge/transfer summary notification system that addresses the important issue of inter-facility transfer among patients infected with multi-drug resistant organisms, especially transfers between acute care hospitals and long term care facilities. It is important to understand and monitor the reservoirs and transmission patterns in different regions of Maryland, especially as patients are transferred from facility to facility. This consideration could lead to a prevention goal of developing a multi-center prevention initiative to identify and label all patient discharge/transfer summaries with notification of infection or colonization with MDROs. A prevention target for this project could include a stepwise involvement of hospitals and long term care facilities in an area.

The MDRO Prevention Collaborative will form work groups to address different aspects of the surveillance and prevention efforts. The initial efforts of the Collaborative will be evaluated and extended to include other MDROs in the future, such as extended spectrum beta lactamase producing gram negative organisms (ESBL) and carbapenem resistant Enterobacteriaceae (CREs) producing organisms, all of which are major threats to vulnerable patients in acute and chronic health care settings. Utilizing this information to extend surveillance and prevention efforts throughout the state will be a future goal.

4. Develop State HAI Training Competencies (Level I)

<u>Objective 4.0</u> By July 1, 2011, study the feasibility of establishing requirements for education and training of health care professionals in HAI prevention, including certification requirements, public education campaigns, and targeted provider education.

The charge to the IP Training and Work Force Development Subcommittee will include consideration of best practices for training and certification of health care professionals in HAI prevention.

5. Implement Strategies for Compliance to Promote Adherence to HICPAC Recommendations (Level II)

This work activity is not included in the initial Maryland HAI Prevention Plan. Future updates of the Plan will consider implementation of compliance strategies based on the assessment of HICPAC strategies planned as part of Activity 1-Implement HICPAC Recommendations.

6. Enhance Prevention Infrastructure by Increasing Joint Collaboratives (Level II)

Objective 3.0 By July 1, 2011, include health care facilities located in adjacent States in prevention collaborative where appropriate.

The migration of patients across jurisdictional and state boundaries to receive health care services, particularly specialized services, is a common occurrence in the South Atlantic region. Analysis of data on migration patterns for cardiac surgery, for example, indicates that Maryland hospitals routinely serve residents of adjacent states. Likewise, Maryland residents are served by cardiac surgery programs located in Delaware, the District of Columbia, Virginia, and West Virginia. Because referral regions for services frequently cross political boundaries, there is value in collaborating with neighboring jurisdictions on prevention planning and data collection projects. In addition, one the APIC chapters covering the Maryland suburbs in the Metropolitan Washington area includes Washington, D.C. and Northern Virginia health care facilities. For these reasons, Maryland will seek to include health care facilities in adjacent states in prevention collaborative activities where appropriate.

7. Establish Collaborative to Prevent HAIs in Non-Hospital Settings (Level II)

Objective 3.0 By July 1, 2011, consider expanding the hand hygiene and MDRO-*Acinetobacter* prevention collaboratives to non-hospital settings where appropriate.

Working with the HAI Advisory Committee, the MHCC, DHMH, and the Maryland Health Quality and Cost Council will work to expand the hand hygiene and MDRO-*Acinetobacter* prevention collaboratives to non-hospital settings. In addition, consideration will be given to expanding the collaboratives to specialty (non-acute) hospitals in Maryland, including rehabilitation, psychiatric, and chronic care hospitals.

HAI Communication and Evaluation Planning

1. Conduct Needs Assessment and/or Evaluation of the State HAI Program (Level I)

Objective 1.0 **By January 1, 2011, develop an inventory of State-level HAI programs; identify gaps in existing infection prevention and control programs; and, recommend strategies to increase impact where appropriate.**

Objective 1.1 **By April 1, 2011, survey infection preventionists, hospital epidemiologists, and other experts regarding strategies to prevent infections.**

Objective 1.2 **By July 1, 2011, update and revise the Maryland HAI Prevention Plan based on experience in planning year one and stakeholder feedback.**

Under the guidance of the Infection Prevention Subcommittee, the HAI Advisory Committee will develop an inventory of State-level HAI programs. The inventory will be used to assist in identifying and understanding gaps in existing infection prevention and control programs. As part of this effort, infection preventionists, hospital epidemiologists, and other experts will be surveyed to obtain expert advice on strategies to prevent infections.

2. Develop and Implement Communication Plan (Level I)

Objective 2.0 **By February 1, 2010, develop and maintain a webpage to provide information to health care providers, policymakers, and the public on HAI prevention planning activities.**

Objective 2.1 **By December 1, 2010, develop an Annual HAI Report to communicate information on HAI Advisory Committee activities, including prevention priorities, the status of data collection initiatives, and other key activities.**

By February 1, 2010, a webpage to provide information about HAI prevention planning activities will be developed. To communicate information about key HAI prevention planning work, an Annual Report will be prepared to summarize key activities of interest to stakeholders, policymakers, and other interested organizations and individuals.

3. Provide Consumers Access to Useful Healthcare Quality Measures (Level II)

<u>Objective 3.0</u> By March 1, 2010, expand public reporting of hospital quality measures on the Maryland Hospital Performance Evaluation Guide to include additional HAI process and outcome measures.

<u>Objective 3.1</u> By July 1, 2011, explore the feasibility of expanding public reporting of HAI measures using the Maryland Ambulatory Surgical Facility Guide and the Nursing Home Guide.

In 1999, the Maryland General Assembly charged the MHCC with developing and implementing a quality evaluation system for hospitals and ambulatory surgical facilities. House Bill 705, "Hospital and Ambulatory Surgical Facilities-Quality of Care and Performance Act", stated that quality of care could be improved by not only establishing common performance measurement sets, but also by publicly reporting performance measurement results to hospitals, consumers, and other interested organizations. To meet this legislative mandate, the MHCC developed and implemented the Hospital Performance Evaluation Guide, which was first released in January 2002.

The Hospital Guide, which includes all 47 Maryland acute care hospitals, reports performance on 18 core quality measures covering processes of care in acute myocardial infarction (AMI), heart failure, pneumonia, and surgical care; and performance on three outcome measures covering 30-day risk-adjusted mortality for Medicare patients with AMI, heart failure, and pneumonia. Data currently reported on surgical care includes three measures regarding appropriate use of antibiotics for hip, knee, and colon surgery patients. This performance data is updated on a regular basis and includes information on performance over time.

Beginning in the first quarter of 2010, the Hospital Guide will be expanded to include additional HAI process and outcome measures: Active Surveillance Testing (AST) for MRSA in ICUs; Surgical Care Improvement Project Measures (SCIP-Infection-4 Cardiac Surgery Patients with Controlled 6 a.m. Postoperative Serum Glucose; SCIP-Infection-6 Surgery Patients with Appropriate Hair Removal); and, CLABSIs. In the third quarter of 2009, data on Health Care Worker Seasonal Influenza Vaccination Rates by hospital will be added to the Hospital Guide for the 2009-2010 reporting period (September 1, 2009-April 15, 2010). As data collection is implemented for SSIs and MDROs, steps will be taken to incorporate appropriate performance measures for these areas on the Hospital Guide.

As prevention planning work is extended to non-hospital settings, MHCC will explore publicly reporting HAI data on its Ambulatory Surgery Facility and Nursing Home Guides.

(Also Refer to Discussion Under State Planning for HAI Surveillance, Detection, Reporting, and Response, Activity 7- Develop Tailored Data Analysis Reports)

4. Identify Priorities and Provide Input to Partners to Help Guide Patient Safety Initiatives and Research Aimed at Reducing HAIs (Level III)

Objective 4.0 **By January 1, 2011, identify priorities and provide input to partners to help guide patient safety initiatives and reducing aimed at reducing HAIs.**

Objective 4.1 **Work with key stakeholders to seek funding to implement priority patient safety initiatives and research aimed at reducing HAIs.**

Appendix A
State HAI Plan Template

Table 1: State infrastructure planning for HAI surveillance, prevention and control.

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	☒	☐	1. Establish statewide HAI prevention leadership through the formation of multidisciplinary group or state HAI advisory council i. Collaborate with local and regional partners (e.g., state hospital associations, professional societies for infection control and healthcare epidemiology, academic organizations, laboratorians and networks of acute care hospitals and long term care facilities (LTCFs))	**Implemented (2008)**
	☒	☐	ii. Identify specific HAI prevention targets consistent with HHS priorities	**April 1, 2010**
			Other activities or descriptions (not required): **<u>Objective 1.0</u> By February 1, 2010, develop a mission and vision statement to provide the foundation for expanding the role of the HAI Advisory Committee to include the development of the Maryland HAI Prevention Plan.** **<u>Objective 1.1</u> By March 1, 2010, establish an HAI Advisory Committee subcommittee structure to guide key components of the Maryland HAI Prevention Plan and implementation activities.** **<u>Objective 1.2</u> By April 1, 2010, identify specific HAI prevention targets for Maryland consistent with priorities established by the U.S. Department of Health and Human Services.** **<u>Objective 1.3</u> Monitor and communicate progress in meeting defined HAI prevention targets on an on-going basis.**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☐	☒	2. Establish an HAI surveillance prevention and control program i. Designate a State HAI Prevention Coordinator	**February 1, 2010**
	☐	☒	ii. Develop dedicated, trained HAI staff with at least one FTE (or contracted equivalent) to oversee the four major HAI activity areas (Integration, Collaboration, and Capacity Building; Reporting, Detection, Response and Surveillance; Prevention; Evaluation, Oversight and Communication)	**January-April 2010**
			Other activities or descriptions (not required): **<u>Objective 2.1</u> Between January 1, 2010 and April 1, 2010, recruit additional staff required to support the Maryland HAI surveillance, prevention, and control program, including an HAI data analyst, an epidemiologist, and an epidemiologist/informaticist.** **<u>Objective 2.2</u> Maintain the Inter-Agency HAI Steering Committee composed of staff from DHMH, the Maryland Health Quality and Cost Council, and Maryland Health Care Commission to oversee work in the four major HAI activity areas: (1) integration, collaboration, and capacity building; (2) reporting, detection, response and surveillance; (3) prevention; and, (4) evaluation, oversight, and communication.**	
	☒	☐	3. Integrate laboratory activities with HAI surveillance, prevention and control efforts. i. Improve laboratory capacity to confirm emerging resistance in HAI pathogens and perform typing where appropriate (e.g., outbreak investigation support, HL7 messaging of laboratory results)	**February-December 2010**

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			Other activities or descriptions (not required): **<u>Objective 3.0</u> By February 1, 2010, hire an epidemiologist/informaticist to assist with Electronic Laboratory Reporting (ELR), which will involve mapping of data elements, and recruiting hospital laboratories to participate in ELR.** **<u>Objective 3.1</u> By June 30, 2010, implement transmission of reportable laboratory results via ELR to DHMH, including HAI-specific laboratory data, at two major hospital system laboratories (Johns Hopkins Hospital and University of Maryland Medical Center).** **<u>Objective 3.2</u> By June 30, 2010, establish a connection to NHSN as a 'subscriber' to the DHMH NBS-MSS for NHSN to start receiving HAI-specific laboratory data.** **<u>Objective 3.3</u> Between July and December 2010, recruit three additional Maryland hospital laboratories to participate in ELR.**	
Level II	☒	☐	4. Improve coordination among government agencies or organizations that share responsibility for assuring or overseeing HAI surveillance, prevention and control (e.g., State Survey agencies, Communicable Disease Control, state licensing boards)	**December 1, 2010**
			Other activities or descriptions (not required): **<u>Objective 4.1</u> Based on the priorities established by the HAI Advisory Committee during the planning process, add additional stakeholders to the Advisory Committee as required to improve coordination and strengthen expertise, including pharmacists, kidney dialysis centers, and home health agencies.**	**As Required**

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☒	☐	5. Facilitate use of standards-based formats (e.g., Clinical Document Architecture, electronic messages) by healthcare facilities for purposes of electronic reporting of HAI data. Providing technical assistance or other incentives for implementations of standards-based reporting can help develop capacity for HAI surveillance and other types of public health surveillance, such as for conditions deemed reportable to state and local health agencies using electronic laboratory reporting (ELR). Facilitating use of standards-based solutions for external reporting also can strengthen relationships between healthcare facilities and regional nodes of healthcare information, such as Regional Health Information Organizations. (RHIOs) and Health Information Exchanges (HIEs). These relationships, in turn, can yield broader benefits for public health by consolidating electronic reporting through regional nodes.	**On-going**
			Other activities or descriptions (not required):	
Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.				

Table 2: State planning for surveillance, detection, reporting, and response for HAIs

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I			1. Improve HAI outbreak detection and investigation	
	☒	☐	i. Work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments	**On-going**
	☒	☐	ii. Establish protocols and provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs.	**On-going**
	☒	☐	iii. Develop mechanisms to protect facility/provider/patient identity when investigating incidents and potential outbreaks during the initial evaluation phase where possible to promote reporting of outbreaks	**On-going**
	☒	☐	iv. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAIs)	**On-going**
			Other activities or descriptions (not required): **<u>Objective 1.0</u> Maintain an on-going training program in infection prevention and control for long term care facility staff, DHMH Office of Health Care Quality surveyors, and local health department communicable disease staff.** **<u>Objective 1.1</u> Maintain an annual training program for all local health department staff who may participate in outbreak investigations, including sanitarians, nurses, and epidemiologists; and, the annual**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			Communicable Disease Update for all local health department personnel to provide the latest information on communicable disease issues, including HAIs. **(Also Refer to Discussion under Activity 3-Improve Communication of HAI Outbreaks and Infection Control Breaches –Objective 3.0)**	
	☒	☐	2. Enhance laboratory capacity for state and local detection and response to new and emerging HAI issues.	**July 1, 2010**
			Other activities or descriptions (not required): **<u>Objective 2.0</u> By July 1, 2010, conduct HAI activities that have a significant laboratory component regarding characterization of antimicrobial resistance.**	
Level II	☐ ☐	☒ ☒	3. Improve communication of HAI outbreaks and infection control breaches i. Develop standard reporting criteria including, number, size and type of HAI outbreak for health departments and CDC ii. Establish mechanisms or protocols for exchanging information about outbreaks or breaches among state and local governmental partners (e.g., State Survey agencies, Communicable Disease Control, state licensing boards)	**July 1, 2011** **July 1, 2010**
			Other activities or descriptions (not required): **<u>Objective 3.0</u> By July 1, 2010, promulgate regulations regarding reportable diseases and conditions to implement HB 1468 (Public Health Surveillance-Confidentiality).**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			4. Identify at least 2 priority prevention targets for surveillance in support of the HHS HAI Action Plan	
	☒	☐	i. Central Line-associated Bloodstream Infections (CLABSI)	**Implemented (July 1, 2008)**
	☐	☐	ii. *Clostridium difficile* Infections (CDI)	**January 1, 2011**
	☐	☐	iii. Catheter-associated Urinary Tract Infections (CAUTI)	
	☐	☒	iv. Methicillin-resistant Staphylococcus aureus (MRSA) Infections	**January 1, 2011**
	☐	☒	v. Surgical Site Infections (SSI)	**April 1, 2010**
	☐	☐	vi. Ventilator-associated Pneumonia (VAP)	
			Other activities or descriptions (not required):	
			5. Adopt national standards for data and technology to track HAIs (e.g., NHSN).	
	☐	☒	i. Develop metrics to measure progress towards national goals (align with targeted state goals). (See Appendix 1).	**April 1, 2010**
	☒	☐	ii. Establish baseline measurements for prevention targets	**July 1, 2008**
			Other activities or descriptions (not required): **<u>Objective 5.0</u>. Maintain use of the National Healthcare Safety Network (NHSN) system for collecting HAI data sets, where appropriate, to provide the ability to benchmark Maryland with national experience.** **<u>Objective 5.1</u> Maintain collection of Central Line-Associated Blood Stream Infections (CLABSI) for hospital inpatient adult critical care units, pediatric critical care units, and neonatal critical care units (including Level II/III and Level III).**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			<u>Objective 5.2</u> Maintain the collection of data on Health Care Worker Influenza Vaccination in acute care hospitals; expand data collection to include nursing homes; and, evaluate the expansion of this process measure to include ambulatory surgical facilities and home health agencies. **<u>Objective 5.3</u> Effective April 1, 2010, expand HAI data reporting requirements for Maryland hospitals to include selected SSIs using the National Healthcare Safety Network (NHSN) system.** **<u>Objective 5.4</u> Effective January 1, 2011, expand HAI data reporting requirements for Maryland hospitals to include the Ventilator-Associated Pneumonia (VAP) Bundle.** **<u>Objective 5.5</u> Effective January 1, 2011, expand HAI data reporting requirements for Maryland hospitals to include Multi-Drug Resistant Organisms and Clostridium *difficile* –Associated Disease (MDRO-CDAD Module) for all Maryland hospital intensive care unit patients using the National Healthcare Safety Network (NHSN) system.** **<u>Objective 5.6</u> Periodically evaluate recommended HAI process and outcome measures based on medical evidence and experience to determine the need to add or discontinue measures.**	
	☒	☐	6. Develop state surveillance training competencies i. Conduct local training for appropriate use of surveillance systems (e.g., NHSN) including facility and group enrollment, data collection, management, and analysis ii.	**April 2008 (CLABSI Training)**
			Other activities or descriptions (not required):	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			<u>Objective 6.0</u>. Maintain ongoing training sessions of DHMH and local health department surveillance staff in the National Electronic Disease Surveillance System (NEDSS) for collecting data on reportable infectious diseases and conditions in Maryland. **<u>Objective 6.1</u>. By March 31, 2010, provide a statewide training seminar, in partnership with the Maryland Hospital Association, the Metropolitan Washington and Baltimore Chapters of APIC, and other stakeholders, on use of the National Healthcare Safety Network (NHSN) Surgical Site Infection (SSI) module.** **<u>Objective 6.2</u>. By December 31, 2010, provide a statewide training seminar, in partnership with the Maryland Hospital Association, the Metropolitan Washington and Baltimore Chapters of APIC, and other stakeholders, on use of the National Healthcare Safety Network (NHSN) Multi-Drug Resistant Organism (MDRO) module.** **<u>Objective 6.0</u>. Maintain on-going participation in monthly National Healthcare Safety Network (NHSN) State User's Conference Calls.**	
	☐	☒	7. Develop tailored reports of data analyses for state or region prepared by state personnel	**April 1, 2010**
			Other activities or descriptions (not required): **<u>Objective 7.0</u> By April 1, 2010, develop format for publicly reporting aggregate and hospital-specific CLABSI on the Maryland Hospital Performance Evaluation Guide.** **<u>Objective 7.1</u> By January 1, 2011, develop format for publicly reporting aggregate and hospital-specific SSI on the Maryland Hospital Performance Evaluation Guide.**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			<u>Objective 7.2</u> By July 1, 2011, develop format for publicly reporting aggregate and hospital-specific MDRO data on the Maryland Hospital Performance Evaluation Guide.	
Level III	☒	☐	8. Validate data entered into HAI surveillance (e.g., through healthcare records review, parallel database comparison) to measure accuracy and reliability of HAI data collection	**CLABSI Validation Currently Being Implemented**
	☒	☐	i. Develop a validation plan	**(On-Site Audits Scheduled December 2009-January 2010)**
	☒	☐	ii. Pilot test validation methods in a sample of healthcare facilities	
	☒	☐	iii. Modify validation plan and methods in accordance with findings from pilot project	
	☒	☐	iv. Implement validation plan and methods in all healthcare facilities participating in HAI surveillance	
	☐	☒	v. Analyze and report validation findings	**February 2009**
	☐	☒	vi. Use validation findings to provide operational guidance for healthcare facilities that targets any data shortcomings detected	**March-April 2009**
			Other activities or descriptions (not required): **<u>Objective 8.0</u> Based on the on-site CLABSI audit, develop on-going protocol for data quality review and validation of CLABSI data reported to the National Healthcare Safety Network (NHSN) system by Maryland hospitals.**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			<u>Objective 8.1</u> By July 1, 2010, develop and implement protocol for data quality review and validation of Maryland hospital SSI data reported to the National Healthcare Safety Network (NHSN) system; provide feedback regarding HAI data validation results and discuss NHSN user technical questions. **<u>Objective 8.2</u> By July 1, 2011, develop and implement protocol for data quality review and validation of Maryland hospital MDRO data reported to the National Healthcare Safety Network (NHSN) system; provide feedback regarding HAI data validation results and discuss NHSN user technical questions.**	
	☐	☐	9. Develop preparedness plans for improved response to HAI i. Define processes and tiered response criteria to handle increased reports of serious infection control breaches (e.g., syringe reuse), suspect cases/clusters, and outbreaks	**Not Included in the initial Maryland HAI Prevention Plan**
			Other activities or descriptions (not required):	
	☐	☐	10. Collaborate with professional licensing organizations to identify and investigate complaints related to provider infection control practice in non-hospital settings, and to set standards for continuing education and training	**Not Included in the initial Maryland HAI Prevention Plan**

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			Other activities or descriptions (not required):	
	☐ ☐	☐ ☐	11. Adopt integration and interoperability standards for HAI information systems and data sources i. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAIs) across the spectrum of inpatient and outpatient healthcare settings ii. Promote definitional alignment and data element standardization needed to link HAI data across the nation.	**Not Included in the initial Maryland HAI Prevention Plan**
			Other activities or descriptions (not required):	
	☐	☐	12. Enhance electronic reporting and information technology for healthcare facilities to reduce reporting burden and increase timeliness, efficiency, comprehensiveness, and reliability of the data i. Report HAI data to the public	**Not Included in the initial Maryland HAI Prevention Plan**
			Other activities or descriptions (not required): **(For information related to Reporting HAI Data to the Public, please refer to discussion under HAI Communication and Evaluation Planning- Activity 3- Provide Consumers Access to Useful Healthcare Quality Measures)**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☐	☒	13. Make available risk-adjusted HAI data that enables state agencies to make comparisons between hospitals.	**July 1, 2011**
			Other activities or descriptions (not required):	
	☐	☒	14. Enhance surveillance and detection of HAIs in nonhospital settings	**July 1, 2011**
			Other activities or descriptions (not required):	
Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.				

Table 3: State planning for HAI prevention activities

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	☐	☒	1. Implement HICPAC recommendations. i. Develop strategies for implementation of HICPAC recommendations for at least 2 prevention targets specified by the state multidisciplinary group.	**October 1, 2010 (Catheter-Associated Infections and Surgical Site Infections)**
			Other activities or descriptions (not required): **<u>Objective 1.1</u> By July 1, 2011, develop strategies for implementation of HICPAC recommendations in the area of multi-drug resistant organisms.**	
	☒	☐	2. Establish prevention working group under the state HAI advisory council to coordinate state HAI collaboratives i. Assemble expertise to consult, advise, and coach inpatient healthcare facilities involved in HAI prevention collaboratives	**March 1, 2010**
			Other activities or descriptions (not required):	
	☒ ☒	☐ ☐	3. Establish HAI collaboratives with at least 10 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions) i. Identify staff trained in project coordination, infection control, and collaborative coordination ii. Develop a communication strategy to	**Maryland Hospital Hand Hygiene Collaborative** **October 2009** **November 2009**

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☐	☒	facilitate peer-to-peer learning and sharing of best practices iii. Establish and adhere to feedback of a clear and standardized outcome data to track progress	**January 1-December 31, 2010**
			Other activities or descriptions (not required): **<u>Objective 3.1</u> By July 1, 2010, initiate the planning and design phase of the Multi-Drug Resistant Organism (MDRO) -*Acinetobacter* Prevention Collaborative; by January 1, 2011, initiate the MDRO-*Acinetobacter* Prevention Collaborative.** **<u>Objective 3.2</u> By July 1, 2010, identify on-going funding to support the key activities of the Maryland Hospital Hand Hygiene Collaborative; by July 1, 2011, identify on-going funding to support the key activities of the MDRO-*Acinetobacter* Prevention Collaborative.**	
	☐	☒	4. Develop state HAI prevention training competencies i. Consider establishing requirements for education and training of healthcare professionals in HAI prevention (e.g., certification requirements, public education campaigns and targeted provider education) or work with healthcare partners to establish best practices for training and certification	**July 1, 2011**
			Other activities or descriptions (not required):	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level II			5. Implement strategies for compliance to promote adherence to HICPAC recommendations	**Not Included in the initial Maryland HAI Prevention Plan**
	☐	☐	i. Consider developing statutory or regulatory standards for healthcare infection control and prevention or work with healthcare partners to establish best practices to ensure adherence	
	☐	☐	ii. Coordinate/liaise with regulation and oversight activities such as inpatient or outpatient facility licensing/accrediting bodies and professional licensing organizations to prevent HAIs	
	☐	☐	iii. Improve regulatory oversight of hospitals, enhancing surveyor training and tools, and adding sources and uses of infection control data	
	☐	☐	iv. Consider expanding regulation and oversight activities to currently unregulated settings where healthcare is delivered or work with healthcare partners to establish best practices to ensure adherence	
			Other activities or descriptions (not required): **This work activity is not included in the initial Maryland HAI Prevention Plan. Future updates of the Plan will consider implementation of compliance strategies based on the assessment of HICPAC strategies planned as part of Activity 1-Implement HICPAC Recommendations.**	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☐	☒	6. Enhance prevention infrastructure by increasing joint collaboratives with at least 20 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions)	**July 1, 2011**
			Other activities or descriptions (not required):	
	☐	☒	7. Establish collaborative to prevent HAIs in nonhospital settings (e.g., long term care, dialysis)	**July 1, 2011**
			Other activities or descriptions (not required):	
Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.				

Table 4: State HAI communication and evaluation planning

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	☐ ☐	☒ ☒	1. Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact i. Establish evaluation activity to measure progress towards targets and ii. Establish systems for refining approaches based on data gathered	**July 1, 2011** **January-April 2011**
			Other activities or descriptions (not required): **<u>Objective 1.0</u> By January 1, 2011, develop an inventory of State-level HAI programs; identify gaps in existing infection prevention and control programs; and, recommend strategies to increase impact, where appropriate.** **<u>Objective 1.1</u> By April 1, 2011, survey infection preventionists, hospital epidemiologists, and other experts regarding strategies to prevent infections.** **<u>Objective 1.2</u> By July 1, 2011, update and revise the Maryland HAI Prevention Plan based on experience in planning year one and stakeholder feedback.**	

	☐	☒	2. Develop and implement a communication plan about the state's HAI program and progress to meet public and private stakeholders needs i. Disseminate state priorities for HAI prevention to healthcare organizations, professional provider organizations, governmental agencies, non-profit public health organizations, and the public	**February 1, 2010**
			Other activities or descriptions (not required): **<u>Objective 2.0</u> By February 1, 2010, develop and maintain a webpage to provide information to health care providers, policymakers, and the public on HAI prevention planning activities.** **<u>Objective 2.1</u> By December 1, 2010, develop an Annual HAI Report to communicate information on HAI Advisory Committee activities, including prevention priorities, the status of data collection initiatives, and other key activities.**	
Level II	☒	☐	3. Provide consumers access to useful healthcare quality measures	**Implemented**
			Other activities or descriptions (not required): **<u>Objective 3.0</u> By March 1, 2010, expand public reporting of hospital quality measures on the Maryland Hospital Performance Evaluation Guide to include additional HAI process and outcome measures.** **<u>Objective 3.1</u> By July 1, 2011, explore the feasibility of expanding public reporting of HAI measures using the Maryland Ambulatory Surgical Facility Guide and the Nursing Home Guide.** **(Also Refer to Discussion Under State Planning for HAI Surveillance, Detection, Reporting, and Response, Activity 7- Develop Tailored Data Analysis Reports)**	

Level III	☐	☒	4. Identify priorities and provide input to partners to help guide patient safety initiatives and research aimed at reducing HAIs	**January 1, 2011**
			Other activities or descriptions (not required): **<u>Objective 4.1</u> Work with key stakeholders to seek funding to implement priority patient safety initiatives and research aimed at reducing HAIs.**	
Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.				